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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Entire Document
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Application No.: R13-3213A
Plant ID No.: 079-00184
Applicant: Multicoat Products Inc. (Multicoat)
Facility Name: Fraziers Bottom Facility
Location: Putnam County
NAICS Code: 325510 -
Application Type: Class II Administrative Update
Received Date: July 7, 2015
Engineer Assigned: John Legg (July 8, 2015)
Fee Amount: \$300.00
Date Received: July 8, 2015
Complete Date: August 5, 2015
Due Date: October 5, 2015
Applicant Ad Date: July 23, 2015
Newspaper: The Hurricane Breeze
UTM's: Easting: 414.927 km Northing: 4,268.397 km Zone: 17
Lat/Long Coordinates: Latitude: 38.5599 Longitude: -81.9764
Description: Administrative update to incorporate the following as-built revisions: clarification of a dust collector pickup point for Transporter 2 and eleven (11) natural gas-fired building heaters, for a dry and wet coatings manufacturing facility.

Id. No. 079-00184 Reg. R13-3213A
Company Multicoat
Facility Frazier's Bottom Region 4
Initials jlegg

SUMMARY

The emissions increase resulting from this administrative update is entirely from the addition of eleven (11) natural gas-fired building heaters. According to the company's July 23, 2015 legal advertisement (and the permit application), the facility's potential to emit increased (because of the natural gas-fired building heaters) by the following amounts:

Table with 2 columns: Pollutant, ton/yr. Rows: CO (0.56), VOC (0.04), PM2.5 (0.05)

Table with 2 columns: Pollutant, ton/yr. Rows: NOx (0.67), PM (0.05), Lead (0.000003)

Table with 2 columns: Pollutant, ton/yr. Rows: SO2 (0.004), PM10 (0.05), Total HAPs (0.0126)

The company also revised the control device description in the Emission Units Table for the equipment piece known as the Transporter 2:

from: "Dust Collector 7 (DC7)"  
 to: "Dust Collector 8 (DC8) (in) and Dust Collector 7 (DC7) (out)"  
 shorten to: "DC8 (in) and DC7 (out)"

The new description documents the as-built construction of a dust collector pickup point to better control dust emissions between the manual bag dump station and Transporter 2. (For information: Transporter 2's purpose is to move the dumped material into the check scale hopper located downstream from itself. Any dust that is generated in operating Transporter 2 is internally vacuumed down within itself then moved/transported to the check scale hopper that is hooked to Dust Collector 7.

The above as built revisions to the facility are summarized below in the 1.0 Emissions Units Table:

**1.0 Emission Units**

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
T2	7E	Transporter 2	2015	1 ton	<del>DC7</del> DC8 (in) DC7 (out)
HTRS	10E	Eleven (11) Natural Gas Building Heaters	2015	10 @ 150 MBtu/hr each 1 @ 60 MBtu/hr	NA

**DESCRIPTION OF PROCESS**

Under R13-3213, Multicoat Products, Inc. constructed a coatings manufacturing facility in Fraziers Bottom, Putnam County. The facility produces a variety of products for concrete, stucco, and other similar applications through both a wet process and a dry process.

The following abbreviations are used in the process descriptions given below:

Equipment or Location to Be Controlled		Control or Equipment Used to Control Emissions	
BG	Bagger	BH	Baghouse
CSH	Check Scale Hopper	DC#	Dust Collector #
DS	Manual Bag Dump Station	FE	Full Enclosure

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Equipment or Location to Be Controlled	
HTRS	Natural Gas Heaters
M#	Mixer #
MBH	Mixed Batch Hopper
S#	Silo #
SC#	Screw Conveyor #
T#	Transporter #
TP#	Transfer Point #

Control or Equipment Used to Control Emissions	
MD	Minimize Drop
N	None
PE	Partial Enclosure
Vac	Vacuum

Dry Process (see Application, Attachments F & G)

This process description was modified to document the control device change to Transporter 2 related to a clarification of a dust collector pickup point to better control dust that could escape from between a material dump station and Transporter 2. This change is bolded in red below.

- Cement and sand arrive by truck and are pneumatically transferred (TP1/BH) to silos 1-6 (S1/DC1 - S6/DC6).
- S1/DC1 - S6/DC6 transfer (TP2/FE) to screw conveyors (SC1/FE - SC5/FE) which transfer (TP3/FE) to Transporter T1/DC7.

Note: Silo 4 (S4/DC4) sits on top of the Transporter (T1/DC7) and discharges directly to it, i.e., there is no screw conveyor needed to move material from Silo 4 to Transporter T1.

- The transporter (T1/DC7) pneumatically transfers the material (TP4/BH) to the Check Scale Hopper (CSH/DC7).
- Additional ingredients are added to the Check Scale Hopper (CSH/DC7) as follows:
  - **A Manual Bag Dump Station is used to input/feed additional material (TP9/MD).**
  - **The additional material exiting the dump station (TP10/BH) is controlled by Dust Collector 8 (DC8) as it feeds to the Transporter 2 (T2/FE), i.e., this is the as-built dust collector pickup point for Transporter 2.**

- **The material is conveyed via Transporter 2 and exits (TP11/BH) to the Check Scale Hopper (CSH) which is controlled by Dust Collect 7 (DC7).**
- Material exiting the Check Scale Hopper (TP5/BH) feeds to the dry Mixer (M1/DC7).
- Micro additions of materials can be directly added by hand (TP12/MD) to dry Mixer 1 (M1/DC7). Once mixed, the material transfers (TP6/BH) to the Mixed Batch Hopper (MBH/DC7) and
- then to the Bagger (BG/DC7, TP7/BH). Materials are transferred (TP8/BH) manually from the bagger to product bags.

The Dry Process consists of material transfers with the bulk of the material consisting of various cements and sand types. For example, the estimated most frequently produced product will consist of 93% by weight of sand/cement. Materials may be blended or individual materials may be bagged. The material transfers are represented by the emission factors from AP42 Section 11.12 Concrete Batching.

Wet Process (see Application, Attachments (F & G))

No changes since the last engineering evaluation for R13-3213:

Sealants, coatings, stains, etc. are mixed in the wet process. The mixer (M2/FE) is a maximum 550 gallon vessel which is manually charged with the necessary ingredients. The charge point is 18 inches in diameter and utilizes a vacuum whenever powdered additions are made. The operator charges the vessel (TP13/PE+Vac), the ingredients are mixed for the specified time and the vessel is emptied through a spigot into product containers (pails/buckets).

VOC emissions were estimated using TANKS 4.09d. The number of potential charges per year was treated as tank turnovers in TANKS. Since approximately 50% by weight of the material charged to M2/FE per batch and per year will be water, and water is used in each anticipated product formulation, water was selected as the most representative liquid material to calculate VOC emissions. Average batch length is approximately 90 minutes, however, for calculation purposes, we have estimated two (2) batches per hour. Particulate emissions for loading dry ingredients were estimated using AP-42 Table 11-12-2.

### Natural Gas-fired Building Heaters (10E)

This section is a new section:

The natural gas-fired building heaters were added to the facility during construction and are permit under this administrative update (R13-3213A).

The eleven (11) natural gas building heaters (HTRS) are grouped as one emission unit (10E). The heaters are used to keep raw stock or finished materials from freezing.

Ten (10) of the heaters are tube heaters (HL3 Series) with a maximum heater rating of 150,000 Btu/hr. The eleventh (11<sup>th</sup>) heater is a Reznor heater rated at 60,000 Btu/hr. The total maximum heater rating for the eleven (11) heaters is: 1.56 MM Btu/hr.

### Vehicle Activity

Not change from last time (R13-3213):

The facility has paved haul roads and both raw materials and products are trucked to and from the site. Emissions have been estimated for truck deliveries and shipments using AP-42, Section 13.2.1 Paved Haulroads.

### SITE INSPECTION

The writer did not perform a site inspection for this Class II Administrative Update R13-3213A).

A site inspection of the facility was performed by Steve Pursley on December 12, 2014 for the first construction permit (R13-3213). The facility is located in a mixed commercial, residential, industrial, and rural area with numerous homes and businesses near and adjacent to the facility.

The facility is located at the intersection of State Route 817 and County Route 35/29 approximately 2.4 miles south on 818 (Winfield Road) from the Buffalo Bridge. Directions to the facility are as follows:

Take I-64 west to exit 40. Then take US Route 35 north approximately 8.6 miles and turn right on County Route 35/29. Go approximately 0.9 miles and the facility is on the right at the intersection of County Route 35/29 and State Route 817.

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## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

### Dry Process

No change in PM emissions since last time (R13-3213).

PM emissions from the dry process result from transfer points. The applicant used AP-42 Section 11.12, Table 11-12-2 to estimate PM emissions and conservatively assumed PM to equal PM<sub>2.5</sub>. A control efficiency of 99.9% was taken where baghouses were used and 80% was taken where full enclosures were used. The applicant also showed calculations for PM HAPs. Those calculations were based on multiplying the maximum percent content of the individual HAP by the total controlled PM emission rate. This is obviously overly conservative since the actual operations will be batch mixtures. However, even using this method, total PM HAP emissions were well below 0.01 pounds per hour. Some of the ingredients used have trace amounts of formaldehyde and vinyl acetate. Calculations were provided for emissions of these HAPs based on a material balance and 100% of off gassing occurring at the facility. Again, even under these extremely conservative assumptions, emissions of VOC HAPs were less than 0.04 tons per year.

### Wet Process

No change in PM emissions since last time (R13-3213):

PM emissions from the wet process result from the manual addition of powdered material to the wet mixer. The applicant assumed a maximum rate of 4,000 pounds per hour and used AP-42 Section 11.12, Table 11-12-2 to estimate PM emissions and conservatively assumed PM to equal PM<sub>2.5</sub>. A control efficiency of 70% was taken to account for the use of the vacuum system.

VOC emissions were determined using EPA TANKS 4.09. Since approximately 50% by weight of the material charged to the wet mixer will be water, the applicant selected water to be used in the TANKS program. The TANKS program calculated water emissions and the applicant simply assumed VOC emissions would equal the water emissions. Since the vapor pressure of many VOCs is significantly greater than the vapor pressure of water (although spot checks of some of the HAP containing substances MSDS sheets showed vapor pressures less than water), the writer believes this method may undercount VOC emissions. However, even if actual VOC emissions were 10x higher, they would still be less than 1 pound per hour. Calculations of HAP emissions from the wet process were based on multiplying the maximum HAP (percent) content of the individual HAP by the total VOC emission rate.

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## Haul Roads

No change in PM emissions since last time (R13-3213):

Haul Road emissions did not change from last time (R13-3213). All haul roads are paved, therefore the paved haul road emission factor from AP-42 section 13.2.1 was used to calculate emissions. No control efficiency was taken.

## Building Heaters

Building heater emissions are new to the facility:

There are a total of eleven (11) building heaters located at the facility. Ten (10) are HL3 Series heaters (tube building heaters) rated at a design heat input of 150,000 Btu/hr each. The one (1) remaining heater is Reznor building heater rated at a design heat input of 60,000 Btu/hr.

Total design heat input for the eleven (11) building heaters is 1.56 MM Btu/hr.

Emission were calculated by Multicoat using emission factors from AP-42, 1.4, Natural Gas Combustion, 7/98. PM10 and PM2.5 were assumed to equal PM. Operating hours equaled 8,760 hr/yr. The heating value of natural gas was assumed to be 1,020 Btu/scf.

Pollutant	Emission Rate	
	(lb/hr)	(ton/yr)
CO	0.13	0.56
NOx	0.15	0.67
PM	0.01	0.05
PM10	0.01	0.05
PM2.5	0.01	0.05
SO2	0.001	0.004
VOC/TOC	0.01	0.04
Lead	0.000001	0.000003
Total HAPs	0.00288	0.0126

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Total emissions for the facility are estimated as being:

Emission Source	PM		PM <sub>10</sub>		PM <sub>2.5</sub>		VOCs		HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Dry Process	0.05	0.01	0.05	0.01	0.05	0.01	0.05	0.04	0.05	0.04
Wet Process	0.01	0.01	0.01	0.01	0.01	0.01	0.08	0.01	0.04	0.01
Haul Roads	0.97	0.12	0.19	0.02	0.01	0.01	--	--	--	--
Nat. Gas Heaters	0.01	0.05	0.01	0.05	0.01	0.05	0.01	0.04	0.00	0.01
<b>Total</b>	<b>1.04</b>	<b>0.19</b>	<b>0.26</b>	<b>0.09</b>	<b>0.08</b>	<b>0.08</b>	<b>0.14</b>	<b>0.09</b>	<b>0.09</b>	<b>0.06</b>
	<b>CO</b>		<b>NO<sub>x</sub></b>							
Nat. Gas Heaters	0.13	0.56	0.15	0.67						
<b>Total</b>	<b>0.13</b>	<b>0.56</b>	<b>0.15</b>	<b>0.67</b>						

## **REGULATORY APPLICABILITY**

The following state regulations apply to the facility (no federal rules i.e. NSPS, MACT/NESHAPs are applicable):

**45CSR7** To Prevent and Control Particulate Matter Air Pollution from Manufacturing Process Operations.

The transport, transfer and mixing operations at the facility are subject to the Particulate Matter emission limits of §45-7-4.1. The process weight rate of the facility is 40,000 pounds per hour. Based on a type a source, Table 45-7A limits allowable PM to 28 pounds per hour. Total controlled calculated emissions from the entire facility is only 1.04 pounds per hour.

The baghouses are subject to the 20% opacity limit of section 3.1.

Additionally, the facility is subject to section 5.1 of the rule which requires a system to minimize fugitive particulate emissions. Multicoat will meet this requirement by locating the dry process inside a building and by utilizing dust collectors.

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The facility is also subject to Section 5.2 of the rule which requires the permittee to maintain particulate matter control of the plant premises and haul roads and utilize good operating practices relating to stockpiles and material handling.

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation.

The as-built changes identified in the permit application meet the definition of a Class II Administrative Update.

The applicant submitted an application for a Class II Administrative Update. They paid the appropriate permitting fee (\$300.00) and their legal ad ran on July 23, 2015 in the *Charleston Gazette*. The company's affidavit of publication was submitted on August 5, 2015 at which time the application was deemed to be complete.

45CSR22 Air Quality Management Fee Program

No change: The facility is not subject to any NSPS, MACT or NESHAP. Additionally, the facility is defined as a minor source under 45CSR30. Therefore the facility is not subject to 45CSR30 and will pay its annual fees through the Rule 22 program.

### **TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS**

Section 112(b) of the Clean Air Act (CAA) identifies 188 compounds as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. Some ingredients used by the facility contain HAPs. However, the potential HAP emissions from the facility are below the levels that define a major HAP source. Therefore, the facility is considered a minor (or area) HAP source, and no source-specific major source NESHAP or MACT standards apply. The applicant has estimated that total HAP emissions from the facility will be less than 0.06 tons per year.

### **AIR QUALITY IMPACT ANALYSIS**

Since this application addresses the construction of a minor source as defined in 45CSR14, no modeling was performed.

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**MONITORING OF OPERATIONS**

The permit will require the applicant to monitor and record the following:

- \* The amount of cement/sand used on a monthly basis.
- \* The type and amount of each Add Mix used in the Dry Process on a monthly basis.
- \* The type and amount of each material charged to the wet mixer.
- \* Results of the required visible emissions testing.
- \* The monthly, combined (as Emission Point ID 10E) natural gas consumption rate for the eleven (11) building heaters and the annual/12-month rolling-total natural gas consumption rate for the heaters.

**RECOMMENDATION TO DIRECTOR**

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-3213A for the administrative update of a coatings manufacturing facility in Fraziers Bottom, Putnam County, be granted to Multicoat Products, Inc.

  
\_\_\_\_\_  
John Legg  
Permit Writer

  
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October 2, 2015

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